C2 & Information Management – Week 10

MARINE CORPS DOCTRINAL PUBLICATION (MCDP) 6 COMMAND AND CONTROL DISCUSSION FACULTY SPOOL GUIDE

1. Purpose and Overview

MCDP 6 contains the Marine Corps philosophy of command and control, and it theorizes how Marine Corps commanders can make decisions and execute plans and orders faster than an adversary. This doctrinal publication provides a conceptual framework for all Marines at all levels of command for the development and exercise of effective command and control in peace, in crisis, or in war. The purpose of this seminar is to begin a dialogue on Marine Corps command and control philosophy. As the time allotted is not sufficient to cover all the myriad issues and concepts contained in MCDP 6, this seminar focuses on the following Marine Corp concepts for command and control:

a. Nature of command and control
b. Command and control theory
c. Creating effective command and control.

2. Method

Discuss the issues for consideration on the course cards with your conference group.

3. Endstate

Students should understand that the Marine Corps' command and control philosophy lies in MCDP 6. Students should also be familiar with the information flow across the battlefield and understand that growth of information doesn't always mean growth of knowledge. Information cannot be dominated; we cannot predict how the enemy will fight. Man, not systems, wins war.

4. References

MCDP 6, *Command and Control*

5. Faculty Requirements

Read MCDP 6, *Command and Control*, and bring it with you to the discussion.

6. Issues for Consideration

a. What is command and control? (pp. 35-43)

Define C2 in your own terms. Some will think "systems" (the hardware and software in a network). Others will think "processes" (how orders are conceived, produced, and executed). MCDP 6 discusses the importance of C2 and proposes command as the exercise of authority and control as the feedback on the effects of the action taken. There's nothing we do on the battlefield that doesn't require C2. Also, ask the students the following questions:

i. *How is C2's effectiveness measured with regard to the results achieved on the enemy, as well as the results achieved internally?*

ii. *Can a commander be effective when he or she has a deficient staff? If so, give examples?* Yes and no. A "yes" example is Stonewall Jackson's effective Shenandoah Valley campaign, the plans for which he kept secret from his subordinates. A "no" example is Braxton Bragg's 1862 Kentucky campaign.

iii. *What is the Marine Corps' concept of command and control based on?* The C2 concept is based on accepting uncertainty as an undeniable fact and being able to operate effectively despite it.

At a minimum students should understand the following and give some examples:

i. C2 is a means for the commander to recognize what needs to be done.
ii. C2 enables a commander to communicate desired actions to subordinates.
iii. C2 takes several forms to include technical-procedural.
iv. C2 is continuous (it occurs prior to, during, and after an evolution).
v. C2's effectiveness is measured by the results achieved on the enemy, as well as by the results achieved internally.

b. The basis for a commander to accomplish command and control is the authority and the responsibility endowed upon him by virtue of his billet. Discuss the various means by which a commander exercises his authority. Cite examples that support your discussion.

What are the three ways a commander exercises his authority? Give some examples?

i. Direct personal instruction and supervision enables the commander to call all the shots and control in detail the actions of his unit. Being human, however, he is limited by the extent to which he can control subordinates (only those within the range of his personal direction).

Example: The battalion commander personally directs the movement of a lieutenant and his platoon. This prevents the commander from focusing on the overall battle. The battalion commander should place himself where he can best control and influence the battle. Was the commander well placed in the example above?

ii. Detailed command refers to an attempt to anticipate all contingencies. It may become prescriptive and attempt to impose order on the battlefield, which, we recognize is impossible. Detailed command has an adverse effect on flexibility. It may work in an environment that is stable and not subject to the human will of the enemy. This type of command may be successful at the recruit depot, a much more predictable environment than that of a battlefield. Don't let this discussion turn into an opportunity to disparage detailed planning.

iii. Command by influence tends to decentralize authority and attempts to guide subordinates with broad limits vice detailed orders. Additionally, it allows subordinates to freely operate within those limits. An example might be to issue a subordinate a mission statement with a clear and concise purpose statement instead of several specific tasks.

It should be brought out that these are only three classifications and they certainly may merge or blend.

c. Discuss command and control in the information age. What challenges does technology present? What drawbacks? (pp. 118-121)

MCDP 6 addresses the management of information as it facilitates the rapid, distributed, and unconstrained flow of information in all directions. No other technology is moving as fast as information technology. Don't fight it, accept it. We must realize that information cannot be dominated; there must be a shift in focus toward "information advantage" and not supremacy. The United States brings a tremendous capability to the battlefield, and we have to determine how we can use the opposition's limited technology to our advantage and our technological advances to our advantage.

How much information is needed to make a decision? The future warfighting environment is information intensive, but how much information is needed? Growth of information doesn't always mean the growth of knowledge. A severe limitation will be bandwidth.

What is the triad of a C2 system?
A command and control system is an arrangement of different elements to produce effective and harmonious actions and generally composed of the following:

i. People. People drive the C2 system. War is a clash of human wills; thus, reason leadership is important.

ii. Information. C2 is about getting information, judging it, processing it, acting on it, and sharing it with others. Information differs from knowledge and understanding. Discuss "battlespace dominance" later.

iii. C2 Support Structure. The C2 support structure aids people who create, use, and disseminate information. It includes organization, procedures, equipment, facilities, training, education, and doctrine.

People win wars—equipment only helps them do it.

What is a process? What is effective C2?

i. A process is a collection of related activities, including the following: gathering and analyzing information, making decisions, organizing resources, planning, communicating instructions, coordinating, monitoring, and supervising. The goal is effective command and control, not an effective system.

ii. Effective C2 should

(a) provide insight (a vision, direction, and focus; often provided by the commander).
(b) generate tempo that is greater than that of our adversary (provide ability to monitor actions and adaptability to adjust).
(c) provide security to deny the enemy knowledge of the plan (often seen as our EEFIs).

Give some examples of how information technology is finding its way onto the battlefield? The U.S. has the lead in C2. In the future, we'll see tremendous leaps in wire communications, similar to what we've seen in electronics and wireless communications. An example is the common tactical picture—shared situational analysis (SA) is good. Commanders must share a common perspective of the battlespace and have the ability to acquire critical information. The commander and his subordinate commanders must see the battlespace in a similar manner to exploit the full potential of the MAGTF's capabilities. However, shared battlespace awareness comes with a price and it requires robust networking. To ensure reliable connectivity between all stations requires substantial communication backup. Equipment and technology help, but they are limited by forces of nature (e.g., weather, line-of-sight, battery power supply).

At what level of command is a common tactical picture required? The common tactical picture may be a requirement at the division, wing and regimental, and MAG levels, but it is still questionable at the battalion level. Marine Corps infantry battalions by nature are foot mobile and have to maneuver and displace to survive (think jungle and mountainous environments). Combat operations centers (COCs) have space restrictions for the equipment they have today. That said, *what would be the power source to operate these machines?* By adding these pieces of equipment with no increase in personnel, *what is the added value to the battalions's warfighting mission?* It is important to note, however, that infantry battalions and up are currently training with C2PC in field exercises.

How many of you are trained in AFATDS/LOGAIS/IOS/TBMCS/C2PC?

How many of you are comfortable with the technical systems listed above?

If you were a potential aggressor, what might you perceive as the center of gravity and critical vulnerability(ies) of a "high-tech" force. Technology is an enabler, but command, control, computers, communications, and intelligence (C4I) are our center of gravity. We have to be careful technology doesn't outpace us, and we still need to know how to do things manually.

How many of our targeting systems rely on a global positioning system (GPS), and what happens if we lose GPS?

In the future, will commanders be fighting the screen (i.e., talking or typing on systems) or is this the role of a technician?

d. If a commander exists to make decisions, and the function of the staff is to translate these decisions into action, then what is the purpose of a C4I system?

A C4I system, no matter what the technology is or might be, must support the decision-action process. To the greatest extent possible, there must be commonality and interoperability. However, the personality and philosophy of the commander and the ability and experience of the staff must be considered.

Should the systems designed to support the commander become the centerpiece of the decision-action process? If so, there is great potential for the "tail wagging the dog" syndrome. On the other hand, a wise commander must be prepared to adapt to the advantages of emerging technology. The bottom line is the commander has to know the C2 system and how to bring it all together. Redundancy and procedures are key.

e. Is the concept of "perfect information" on battlespace plausible? If so, what is the impact on the organization of the future? If not, why not?

This is a free play exercise. Arguments on both sides of the issue should be encouraged.

If possible, what does "perfect information" do to the initiative of subordinate leaders and to the organizational structure of future forces? Future organizations will be less stove-piped if they have the capability to talk both vertically (up and down the chain of command) *and* horizontally (to the flanks).

If perfect information is not possible, what are the limits of technology? It is arguable that systems will soon exist that can provide perfect or near-perfect views of battlespace and share such information with all members of an organization? The argument might be proposed that no system yet envisioned can read minds and, therefore, the immutable nature of war remains unchanged by technology—that war remains a violent test of independent, thinking wills, wrought with unpredictable friction.

Is there a danger of looking for perfect information with modern-day systems? Yes, paralysis by analysis. The commander will be afraid to make a decision due to his inability to find confirmation for his decision.

f. Discuss the environment of command and control with regard to time, certainty, and tempo. (pp. 54-57).

i. *Time*. Review MCDP 1. The quickest decision-maker has a distinct advantage. (When the commander's CCIR is answered, it needs to get to him now, not six hours later.)

ii. *Certainty*. While you gather the perfect information, the situation may change and your "new updated information" may become useless. Information provided to the commander and staff about the battlespace must be timely.

iii. *Tempo*. Tempo is controlling the pace of battle. Increasing the speed of the decision cycle creates tempo. More information requires more time, which slows tempo. As a side note at the tactical level, you can't maintain tempo if your radio operator can't copy or digest the radio message in a timely manner.

iv. The enemy is not static. As you gather information, he tries to counter your actions.

Everyone wants information in real time. As an example, if a radar display didn't provide virtually real time information, what would be the impact on warfighting?

g. Explain the OODA loop as a command and control model.

How does the observation-orientation, decision action (OODA) loop relate to C2?

i. OODA is sometimes referred to as a decision and execution model.

ii. Have the student briefly describe the four elements of OODA. According to the model, if we find ourselves in a conflict we first make observations about the situation. That is, we must take in information about our own status, our surroundings, and our enemy. After observing the situation, we orient on it. We make certain estimates, assumptions, analyses, and judgments about the situation in order to create an accurate mental image. In other words, we figure out what the situation means. Based on our orientation, we decide what to do and we come up with a plan. Next, we put the plan into action. Action includes disseminating the plan, supervising to ensure proper execution, and monitoring results, which takes us full circle to the observation phase. Having acted, we assume we have changed the situation, and so the cycle begins again. *Which is the most important step?* (orientation)

iii. Orientation is the key to OODA loop.

(a) Each of us bases our decisions and actions on observations of the outside world, which are filtered through mental models (paradigms) that orient us to the opportunities and threats posed by these observations. While the concept of disrupting an opponent's decision cycle is an old idea in military affairs, Boyd's theory of operating inside an adversary's decision cycle—or OODA loop—and its relationship to conflict is a bold new conception. His strategic aim was to isolate his adversary—physically, mentally, and morally—from his external environment by destroying his view of the world: his orientation. The key to appreciating the power of Boyd's idea is to understand why the orientation function is the door through which a competitor can penetrate his opponent's decision cycle.

(b) Each of us bases our decisions and actions on observations of the outside world, which are filtered through mental models that orient us to the opportunities and threats posed by these observations. These mental models, or paradigms, shape

and are shaped by the evolving relationship between the individual organism and its external environment.

(c) In conflict, each participant, from the individual soldier trying to survive to the commander trying to shape strategy, must make decisions based on his orientation to reality—his appreciation of the external circumstances on which he must act. Boyd argued that one's orientation to the external world changes and evolves because it is formed by a continuous interaction between his observations of unfolding external circumstances and his interior orientation processes that make sense of these circumstances. These interior processes take two forms of activity: analysis (understanding the observations in the context of pre-existing patterns of knowledge) and synthesis (creating new patterns of knowledge when existing patterns do not permit the understanding needed to cope with novel circumstances).

(d) The synthetic side of the dialectic is crucially important to one's orientation because it is the process by which the individual (or group) evolves a new world view, if and when one is needed to cope with novel circumstances. The synthetic process can be extremely painful because its nature is to build a new paradigm by destroying the existing one. Boyd strove to use multiple, quick-changing, destructive thrusts to isolate his adversary from reality by destroying his existing paradigm and, at the same time, deny his adversary the opportunity to synthesize a new paradigm. The combination of menacing pressure and an inability to cope with external circumstances causes the adversary to experience various combinations of uncertainty, doubt, confusion, self-deception, indecision, fear, panic, discouragement, and despair—which, in turn, overload his capacity to adapt or endure.

(e) Decisions are based on an orientation to reality and external circumstances we must act on.

(f) Decision are based on a continuous interaction between observations of unfolding external circumstances and interior orientation processes that make sense of these circumstances.

(1) *Analysis*: Understanding the observation in the context of pre-existing patterns of knowledge.
(2) *Synthesis*: Creating new patterns of knowledge.

iv. Discuss the continuous, or cyclical, nature of the OODA model.

v. Explain associated cycles working throughout this model (e.g., the intelligence cycle).

vi. Note that each echelon of command will have OODA loops at a different stage.
Example: While regiment is deciding on the COA, battalion is orienting (also use other MAGTF examples).

vii. Emphasize tempo. Speed in C2 means shortening the time needed to make decisions, plan, coordinate, and communicate. Speed in C2 also means shortening the time needed to accomplish the necessary command and control activities.

viii. Finally, reinforce that C2 is not merely speed, but speed with regard to the enemy's decision and execution cycle.

h. Using the information hierarchy, develop an example to discuss the actions necessary to transpose raw data to understanding.

We think in terms of hierarchy and authority. The hierarchy transmits orders. Do we need to limit the information that goes to the commander? A symptom of information management is too much raw data is reported to the commander (i.e., redundant information is provided via various means).

Solutions include filtering the information flow so the commander receives useful, focused information vice raw data. All commanders and staff officers need to be involved in shared responsibilities for information management. The commander needs to ask not "What do I know?" but "What don't I know?"

On the other hand, is too much information pushed down to too low a level?

Below are two simple SALUTE reports. Tell me what stages this raw data goes through before it becomes understandable and usable.

SALUTE report 1: Reconnaissance 1 reports enemy trucks regularly ferrying up and down the main supply route (MSR) to the enemy battalion's position.

SALUTE report 2: An aerial observer reports what appears to be a supply area 30 miles to the rear of the enemy.

This exercise may be hard for some students, but here we want to define the stages of the information hierarchy. Help students walk through this example of taking raw data and watch as it progresses into understanding.

Information Class	Actions	Process	Results
Raw data	Enemy activity/supply location	Raw signal	Additional input
Processed data	S2 chief logs and plots on map, passes to OPS/FSC chief.	Formats, plots, translates, and correlates	Gives meaning
Knowledge	S2 relates to previous reports, analyzes the effect of extended distances, and passes information to commander.	Evaluates, integrates, correlates, and analyzes	Give situational meaning
Understanding	Commander adds to his estimate of the situation that the enemy is completely dependent on MSR.	Synthesizes and visualizes	Identifies critical vulnerability

i. What is the human dimension of war? Explain what Israeli General Yeshayahu Gavish meant when he said, "There is no alternative to looking in a subordinate's eyes, listening to his tone." Discuss this quote with regard to images and how they convey information.

What did General Gavish mean when he said "There is no alternative to looking in a subordinate's eyes, listening to his tone."? General Gavish talks about people's human behavior—tone, pitch of voice, and so forth. Here, you should get an answer that starts to explain image-building and its relation to command and control. Bring out the fact that humans don't think in the form of data; they use images or mental pictures of a given situation. Mere digital terminals cannot explain the true situation as well as firsthand experience.

MCDP 6, page 119, states "Wherever possible, person-to-person information should be communicated by word of mouth and face-to-face since humans communicate not only by what they say but also by how they say it.

What are the three types of mental images a commander should have in his mind? (pp. 74-75).

i. Close-up
ii. Overall
iii. Enemy (from the enemy's perspective).

What are the techniques that enable the commander to gain these images? Lead your discussion to include directed telescope, implicit communications, and decentralized decision-making (p. 76).